

WHAT IS CLAIMED IS:

1. A skipfire control system for use in a locomotive engine including a plurality of fuel injected cylinders, each of the plurality of cylinders having a fuel injector and an injector rocker arm movable to actuate the fuel injector to inject fuel to the associated cylinder, the engine also including a camshaft engagable with each of the injector rocker arms to move the rocker arms for actuation of the fuel injectors, the skipfire control system comprising:

a plurality of skipfire mechanisms, each of the plurality of skipfire mechanisms being operatively associated with a respective injector rocker arm of the plurality of cylinders, each of the plurality of skipfire mechanisms including an actuator movable between (1) an inoperative position wherein the actuator allows the camshaft to engage and move the associated injector rocker arm to actuate the associated fuel injector, and (2) an operative position wherein the actuator disengages the associated injector rocker arm from the camshaft to prevent the associated rocker arm from being moved by the camshaft to actuate the associated fuel injector; and

a skipfire controller operatively connected to the plurality of skipfire mechanisms, the skipfire controller being responsive to an engine operating parameter to actuate selected ones of the plurality of skipfire mechanisms so as to move the actuators thereof to the operative positions to thereby prevent actuation of the fuel injectors associated with the selected ones of the plurality of skipfire mechanisms.

2. The skipfire control system according to claim 1, wherein the number of skipfire mechanisms is equal to the number of cylinders of the engine.

3. The skipfire control system according to claim 1, wherein each skipfire mechanism comprises a cylinder and a piston mounted in the cylinder, the cylinder being communicated to a source of pressurized fluid so as to enable the pressurized fluid to move the piston within the cylinder, wherein the movement of the piston moves the actuator between the inoperative and operative positions.

4. The skipfire control system according to claim 3, wherein the pressurized fluid is air.

5. The skipfire control system according to claim 4, wherein a source of pressurized fluid is an air reservoir for operating locomotive pneumatic brakes.

6. The skipfire control system according to claim 1, wherein the skipfire controller monitors the engine operating parameter and actuates selected ones of the plurality of skipfire mechanisms when the engine operating parameter has fallen below a predetermined threshold for a predetermined period of time.

7. The skipfire control system according to claim 1, wherein the engine operating parameter is engine speed.

8. The skipfire control system according to claim 1, wherein the skipfire controller controls a plurality of valves operatively connected to an associated skipfire mechanism such that selected ones of the plurality of valves can be actuated to allow a source of pressurized fluid to move the actuator of the associated skipfire mechanism to its operative position.

9. A locomotive comprising:  
an engine including a plurality of fuel injected cylinders, each cylinder having a fuel injector and an injector rocker arm movable to actuate the fuel injector to inject fuel to the associated cylinder, the engine also including a camshaft engagable with each of the injector rocker arms to move the rocker arms for actuation of the fuel injectors; and  
a skipfire control system comprising:  
a plurality of skipfire mechanisms, each of the plurality of skipfire mechanisms being operatively associated with a respective injector rocker arm of the plurality of cylinders, each of the plurality of skipfire mechanisms including an actuator movable between (1) an inoperative position wherein the actuator allows the camshaft to engage and move the associated injector rocker arm to actuate the associated fuel injector, and (2) an operative position wherein the actuator disengages the associated injector rocker arm from the camshaft to prevent the associated rocker arm from being moved by the camshaft to actuate the associated fuel injector; and  
a skipfire controller operatively connected to the plurality of skipfire mechanisms, the skipfire controller being responsive to an engine operating parameter to

actuate selected ones of the plurality of skipfire mechanisms so as to move the actuators thereof to the operative positions to thereby prevent actuation of the fuel injectors associated with the selected ones of the plurality of skipfire mechanisms.

10. The locomotive according to claim 9, wherein the engine is a two-stroke diesel engine.

11. The locomotive according to claim 9, wherein the engine includes 16 cylinders.

12. The locomotive according to claim 9, wherein each fuel injector includes an injector plunger that is movable by the injector rocker arm from an extended position to a depressed position to actuate the injector, the plunger being biased by a spring into the extended position.

13. The locomotive according to claim 9, wherein the number of skipfire mechanisms is equal to the number of cylinders of the engine.

14. The locomotive according to claim 9, wherein each skipfire mechanism comprises a cylinder and a piston mounted in the cylinder, the cylinder being communicated to a source of pressurized fluid so as to enable the pressurized fluid to move the piston within the cylinder, wherein the movement of the piston moves the actuator between the inoperative and operative positions.

15. The locomotive according to claim 14, wherein the pressurized fluid is air.

16. The locomotive according to claim 15, wherein a source of pressurized fluid is an air reservoir for operating locomotive pneumatic brakes.

17. The locomotive according to claim 9, wherein the skipfire controller monitors the engine operating parameter and actuates selected ones of the plurality of skipfire mechanisms when the engine operating parameter has fallen below a predetermined threshold for a predetermined period of time.

18. The locomotive according to claim 9, wherein the engine operating parameter is engine speed.

19. The locomotive according to claim 9, wherein the skipfire controller controls a plurality of valves operatively connected to an associated skipfire mechanism such that selected ones of the plurality of valves can be actuated to allow a source of pressurized fluid to move the actuator of the associated skipfire mechanism to its operative position.

20. A method of skipfiring a locomotive engine including a plurality of fuel injected cylinders, each of the plurality of cylinders having a fuel injector and an injector rocker arm movable to actuate the fuel injector to inject fuel to the associated cylinder, the engine also including a camshaft engagable with each of the injector rocker arms to move the rocker arms for actuation of the fuel injectors, the method comprising:

providing a plurality of skipfire mechanisms, each of the plurality of skipfire mechanisms operatively associated with a respective injector rocker arm of the plurality of cylinders, each of the plurality of skipfire mechanisms including an actuator movable between (1) an inoperative position wherein the actuator allows the camshaft to engage and move the associated injector rocker arm to actuate the associated fuel injector, and (2) an operative position wherein the actuator disengages the associated injector rocker arm from the camshaft to prevent the associated rocker arm from being moved by the camshaft to actuate the associated fuel injector;

monitoring an engine operating parameter; and

actuating selected ones of the plurality of skipfire mechanisms responsive to the engine operating parameter so as to move the actuators thereof to the operative positions to thereby prevent actuation of the fuel injectors associated with the selected ones of the plurality of skipfire mechanisms.

21. The method according to claim 20, wherein selected ones of the plurality of skipfire mechanisms are actuated when the engine operating parameter falls below a predetermined threshold for a predetermined period of time.

22. The method according to claim 20, wherein the engine operating parameter is engine speed.

23. The method according to claim 20, further comprising controlling a plurality of valves operatively connected to an associated skipfire mechanism such that selected ones of the plurality of valves can be actuated to allow a source of pressurized fluid to move the actuator of the associated skipfire mechanism to its operative position.